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August 15, 2002

Mr. Tim Method, Deputy Commissioner
Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, Indiana 46206-6015

RE: Indiana Water Quality Coalition and Indiana Manufacturers Association
Comments on IDEM's July 22, 2002 Memorandum on Water Quality
Rules, Triennial Review and Related Topics Policy Discussion

Dear Mr. Method:

On June 24, 2002, the Indiana Department of Environmental Management convened a meeting of stakeholders to discuss the process for revision of Indiana's water quality standards and implementation procedures rules. During the meeting, stakeholders requested that IDEM provide a document outlining the rule issues it would propose for review and revision, along with IDEM's rationale for why each issue should be considered for revision. IDEM provided such a document on July 22, 2002 ("Summary of Key Issues"). The Indiana Water Quality Coalition and the Indiana Manufacturers Association offer the following comments on the Summary of Key Issues. We encourage IDEM to consider these comments as it develops a process for making revisions to Indiana's water quality standards and implementation procedures rules.

The Indiana Water Quality Coalition ("IWQC") is a group of businesses with shared interests in Indiana regulations, policies and operating procedures concerning water quality. The members of the Indiana Water Quality Coalition include: Indiana Coal Council, Indiana Builders Association, Indiana Manufacturers Association, Hoosier Energy, NiSource Inc., Jefferson Smurfit Corporation, BP, American Electric Power, and Eli Lilly and Company. The Indiana Manufacturers Association ("IMA") is a voluntary, non-profit trade association representing nearly 2,000 companies and 600,000 manufacturing jobs. IMA staff provide support to and management of the IWQC, including periodic spokesperson duties. Members of the IWQC and IMA have facilities with NPDES permits, and will be directly affected by revisions to Indiana's water quality standards and implementation procedures rules.

Generally, we recommend that IDEM implement a process that organizes issues into two categories. The first category would be for issues that are non-controversial and should move immediately to the formal rulemaking process. These issues were termed “no brainers” during the June 24 work group meeting. The other category would consist of issues that will require additional consideration by focused work groups prior to initiation of the formal rulemaking process. Our comments recommend categories for the issues in the Summary of Key Issues, as well as other issues that should be considered during the rulemaking process. For the “no brainers,” we also recommend a timeframe to expedite adoption of rule revisions. For the other issues, we recommend a process for work group consideration and a timeframe for advancing the work group discussions to the formal rulemaking process.

I. “No Brainers” – Non-Controversial Rule Revisions That Should Be Expeditiously Adopted

The following issues should not require work group consideration, and should be immediately advanced to the formal rulemaking process in accordance with the recommended timeframe in Section II of these comments.

1. Narrative Criteria, 327 IAC 2-1-6(a)(1) and (2); 327 IAC 2-1.5-8(b)(1) and (2)

The narrative criteria should be clarified to apply only to surface water. The recently adopted ground water quality standards rule, 327 IAC 2-11, establishes narrative criteria for ground water.

327 IAC 2-1-6(a)(1): All **surface** waters at all times and at all places....

327 IAC 2-1-6(a)(2): At all times, all **surface** waters outside of mixing zones....

327 IAC 2-1.5-8(b)(1): All **surface** waters within the Great Lakes system at all times and at all places....

327 IAC 2-1.5-8(b)(2): At all times, all **surface** waters outside of the applicable mixing zones....

The narrative statement concerning nuisance conditions should be revised to be less subjective. Narrative criteria by their very nature are subjective. However, every attempt should be made to make them as understandable as possible to the dischargers that must comply with them. The narrative statement concerning nuisance conditions has created permitting and compliance problems because it appears to prohibit discharges producing **any** color, visible oil sheen or odor. The statement instead should focus on objectionable conditions that cause a nuisance.

327 IAC 2-1-6(a)(1)(C): that ~~produce color, visible oil sheen,~~ cause an objectionable film or sheen on the surface of the water, or cause an objectionable deposit, film or

discoloration or residue on a shoreline, bank or aquatic vegetation, odor, or other conditions in such degree as to create a nuisance;

2. Numeric Criteria, 327 IAC 2-1-6; 327 IAC 2-1.5-8

A. Adoption of Aquatic Life Dissolved Metals Criteria for Non-Great Lakes System Waters, 327 IAC 2-1-6(a)(3), Tables 1 and 2

Indiana should adopt U.S. EPA's 1993 recommendation that dissolved metal concentrations, rather than total or acid-soluble, be used as water quality criteria. The Great Lakes system aquatic life dissolved criteria in 327 IAC 2-1.5-8(b)(3), Table 8-1, for the following metals should be adopted for the non-Great Lakes system waters: arsenic (III), cadmium, chromium (III), chromium (VI), copper, nickel, selenium and zinc. The non-Great Lakes lead aquatic life criteria should be replaced with the Great Lakes Tier I dissolved lead criteria published on IDEM's website.¹ The non-Great Lakes system table of criteria at selected hardness values (327 IAC 2-1-6(a)(3), Table 2) also should be replaced with the appropriate Great Lakes system values in 327 IAC 2-1.5-8(b)(4), Table 8-2.

B. Adoption of Aquatic Life Free Cyanide Criteria for Non-Great Lakes System Waters, 327 IAC 2-1-6(a)(3), Table 1

Indiana should adopt U.S. EPA's recommendation that free cyanide, rather than total, be used as the water quality criteria. The Great Lakes system aquatic life free cyanide criteria in 327 IAC 2-1.5-8(b)(3), Table 8-1, should be adopted for the non-Great Lakes system waters.

C. Revision of Total Cyanide Human Health Criteria for Non-Great Lakes System Waters, 327 IAC 2-1-6(a)(3), Table 1

The current Indiana non-Great Lakes system human health point of water intake cyanide criterion is 200 µg/l expressed as total cyanide. There is no general human health criterion. EPA has made revisions to the national recommended cyanide human health criteria.² The revised criteria are 220,000 µg/l human health and 700 µg/l human health point of water intake. The Indiana non-Great Lakes system cyanide human health criteria should be revised to reflect the national recommended criteria.

D. Deletion of Arsenic Human Health Criteria for Non-Great Lakes System Waters, 327 IAC 2-1-6(a)(3), Table 1

U.S. EPA is reassessing the national recommended arsenic human health criteria.³ The non-Great Lakes system arsenic human health criteria should be deleted until U.S.

¹ www.in.gov/idem/water/planbr/wqs/criteria/crdwn.html.

² "National Recommended Water Quality Criteria -- Correction," EPA 822-Z-99-001 (April 1999).

³ 65 Fed. Reg. 60664 (October 12, 2000).

EPA issues new national recommended criteria. Alternatively, it should be replaced with the Great Lakes Tier I arsenic criteria published on IDEM's website.⁴

E. Deletion of Dissolved Solids, Fluoride and Sulfates Criteria, 327 IAC 2-1-6(a)(3)

The non-Great Lakes system rules contain dissolved solids, fluorides and sulfates criteria that apply to all waters. The criteria are based on secondary drinking water standards for aesthetic purposes – taste and smell. It is not appropriate to apply secondary drinking water standards as ambient water quality criteria. The Great Lakes system rules do not contain these criteria, and they should be deleted from 327 IAC 2-1-6(a)(3). Appropriate criteria for dissolved solids, fluorides and sulfates are contained in 327 IAC 2-1-6(e), public water supply criteria, and 327 IAC 2-1-6(f), industrial water supply criteria.

F. Revision of Ammonia Criteria for Non-Great Lakes System and Great Lakes System Waters, 327 IAC 2-1-6(b)(5) and 327 IAC 2-1.5-8(c)(5)

In 1999, EPA updated its ammonia criteria guidance, based on the latest scientific knowledge on the effects of ammonia on aquatic life ("1999 update").⁵ The 1999 update supercedes all previous EPA ammonia criteria guidance documents. The 1999 update reflects recent research and data, particularly concerning the relationship of pH and temperature to the acute and chronic criteria and the averaging period of the chronic criteria. The acute criterion is now dependent on pH and fish species, and the chronic criterion is based on pH and temperature. At lower temperatures, the chronic criterion is also dependent on early life stages of fish. As a result, when protection of the early life stages of fish is not needed, the chronic criterion values in the 1999 update are higher than the values in the 1984 guidance document.

The 1999 update also revised the averaging period and flow design recommendations for the chronic criterion. The 1999 update provides that stream design flow can be applied based on a 30-day averaging period for ammonia. Thus, the recommended stream design flow is 30B3 (the lowest 30-day flow based on a three year return interval when flow records are analyzed using EPA's DFLOW procedure) and either 30Q10 or 30Q5 (the lowest 30-day flow based on a ten-year or five-year return interval when flow records are analyzed using extreme value statistics). Alternately, States may multiply by 2.5 EPA's recommended stream design flow for four-day chronic criterion: 4B3 (the lowest four-day flow based on a three-year return interval using DFLOW) or 7Q10 (the lowest seven-day flow based on a ten-year return interval using extreme value statistics). Application of either the 30-day averaging period or the four-day averaging period times 2.5 will result in less restrictive criteria than the averaging period in the 1984 guidance document.

⁴ www.in.gov/idem/water/planbr/wqs/criteria/crdown.html.

⁵ *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014, December 1999). Notice of this document was published at 64 Fed. Reg. 71974 (December 22, 1999).

The ammonia criteria for the non-Great Lakes system, 327 IAC 2-1-6(b)(5), should be revised as follows:

(5) The following criteria will be used to regulate ammonia:

(A) Except for waters covered in clause (B), at all times, all waters outside of mixing zones shall be free of substances in concentrations which, on the basis of available scientific data, are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

(B) ~~For those waters listed in subsection (c),~~ The following ammonia criteria will apply outside the mixing zone:

Maximum Ammonia Concentrations (Unionized Ammonia as N) ^{***} (mg/l) Temperature (°C)							
pH	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>
6.5	0.0075	0.0106	0.0150	0.0211	0.0299	0.0299	0.0299
6.6	0.0092	0.0130	0.0183	0.0259	0.0365	0.0365	0.0365
6.7	0.0112	0.0158	0.0223	0.0315	0.0444	0.0444	0.0444
6.8	0.0135	0.0190	0.0269	0.0380	0.0536	0.0536	0.0536
6.9	0.0161	0.0228	0.0322	0.0454	0.0642	0.0642	0.0642
7.0	0.0191	0.0270	0.0381	0.0539	0.0761	0.0761	0.0761
7.1	0.0244	0.0316	0.0447	0.0631	0.0892	0.0892	0.0892
7.2	0.0260	0.0367	0.0518	0.0732	0.1034	0.1034	0.1034
7.3	0.0297	0.0420	0.0593	0.0837	0.1183	0.1183	0.1183
7.4	0.0336	0.0474	0.0669	0.0946	0.1336	0.1336	0.1336
7.5	0.0374	0.0528	0.0746	0.1054	0.1489	0.1489	0.1489
7.6	0.0411	0.0581	0.0821	0.1160	0.1638	0.1638	0.1638
7.7	0.0447	0.0631	0.0892	0.1260	0.1780	0.1780	0.1780
7.8	0.0480	0.0678	0.0958	0.1353	0.1911	0.1911	0.1911
7.9	0.0510	0.0720	0.1017	0.1437	0.2030	0.2030	0.2030
8.0	0.0536	0.0758	0.1070	0.1512	0.2135	0.2135	0.2135
8.1	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.2	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.3	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.4	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.5	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.6	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.7	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.8	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
8.9	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137
9.0	0.0537	0.0758	0.1071	0.1513	0.2137	0.2137	0.2137

*** To calculate total ammonia, divide the number in the table by the value determined by: $1/(10^{pka-pH} + 1)$.

Where: $pka = 0.09018 + (2729.92/(T + 273.2))$
 $pH =$ pH of water
 $T =$ °C

24 Hour Average Ammonia Concentrations

(Unionized Ammonia as N)***

pH	Temperature (°C)						
	0	5	10	15	20	25	30
6.5	0.0005	0.0008	0.0011	0.0015	0.0015	0.0015	0.0015
6.6	0.0007	0.0010	0.0014	0.0019	0.0019	0.0019	0.0019
6.7	0.0009	0.0012	0.0017	0.0024	0.0024	0.0024	0.0024
6.8	0.0011	0.0015	0.0022	0.0031	0.0031	0.0031	0.0031
6.9	0.0014	0.0019	0.0027	0.0038	0.0038	0.0038	0.0038
7.0	0.0017	0.0024	0.0034	0.0048	0.0048	0.0048	0.0048
7.1	0.0022	0.0031	0.0043	0.0061	0.0061	0.0061	0.0061
7.2	0.0027	0.0038	0.0054	0.0077	0.0077	0.0077	0.0077
7.3	0.0034	0.0048	0.0068	0.0097	0.0097	0.0097	0.0097
7.4	0.0043	0.0061	0.0086	0.0122	0.0122	0.0122	0.0122
7.5	0.0054	0.0077	0.0108	0.0153	0.0153	0.0153	0.0153
7.6	0.0068	0.0097	0.0136	0.0193	0.0193	0.0193	0.0193
7.7	0.0086	0.0122	0.0172	0.0242	0.0242	0.0242	0.0242
7.8	0.0092	0.0130	0.0184	0.0260	0.0260	0.0260	0.0260
7.9	0.0098	0.0138	0.0196	0.0276	0.0276	0.0276	0.0276
8.0	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.1	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.2	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.3	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.4	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.5	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.6	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.7	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.8	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
8.9	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294
9.0	0.0103	0.0146	0.0206	0.0294	0.0294	0.0294	0.0294

*** To calculate total ammonia, divide the number in the table by the value determined by: $1/(10^{pka-pH} + 1)$.

Where: $pka = 0.09018 + (2729.92/(T + 273.2))$
 $pH =$ pH of water
 $T =$ °C

AAC (mg/L as N)

pH	Cold Water Fishery Present	Cold Water Fishery Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0

6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Where cold water fishery present: $AAC = (0.275/(1 + 10^{7.204-pH})) + (39.0/(1 + 10^{pH-7.204}))$

Where cold water fishery absent: $AAC = (0.411/(1 + 10^{7.204-pH})) + (58.4/(1 + 10^{pH-7.204}))$

CCC (30-day average) for Fish Early Life Stages Present (mg/l as N)

pH	Temperature (°C)									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244

8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

$$30\text{-day CCC} = (0.0577 / (1 + 10^{7.688 - \text{pH}})) + (2.487 / (1 + 10^{\text{pH} - 7.688}))$$

The highest four-day average (CAC) within the 30-day period should not exceed 2.5 times the CCC values in the above table.

CCC (30-day average) for Fish Early Life Stages Absent, mg N/L

pH	Temperature (°C)									
	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15 C and above, the criterion for fish ELS absent is the same as the criterion for fish ELS present.

In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the CCC.

The ammonia criteria for the Great Lakes system, 327 IAC 2-1.5-8(c)(5), should be revised as follows:

(5) The following criteria shall be used to regulate ammonia:

(A) Concentrations of total ammonia (as N) shall not exceed the CMC outside the zone of initial dilution or the final acute value (FAV = 2 (CMC)) in the undiluted

discharge unless, for a discharge to a receiving stream or Lake Michigan, an alternate mixing zone demonstration is conducted and approved in accordance with 327 IAC 5-2-11.4(b)(4), in which case, the CMC shall be met outside the discharge-induced mixing zone. The CMC of total ammonia (as N) is determined using the following equations:

$$\text{CMC} = \frac{(0.822)(0.52)(10^{(\text{pK}_a - \text{pH})} + 1)}{(\text{FT})(\text{FPH})(2)}$$

Where:

$$\text{FT} = 10^{0.03(20-T)}$$

$$\text{FPH} = 1; \text{ when: } 8 \leq \text{pH} \leq 9; \text{ or } \frac{1 + 10^{(7.4 - \text{pH})}}{1.25}; \text{ when: } 6.5 \leq \text{pH} \leq 8$$

$$\text{pK}_a = 0.09018 + \frac{2729}{T + 273.2}$$

$$T = \text{Temperature in } ^\circ\text{C}$$

Where cold water fishery present:

$$\text{CMC} = (0.275/(1 + 10^{7.204 - \text{pH}})) + (39.0/(1 + 10^{\text{pH} - 7.204}))$$

Where cold water fishery absent:

$$\text{CMC} = (0.411/(1 + 10^{7.204 - \text{pH}})) + (58.4/(1 + 10^{\text{pH} - 7.204}))$$

(B) The **30-day and 4-day** criterion continuous concentrations (CCC) of total ammonia (as N) is determined using the following equations:

$$\text{CCC} = \frac{(0.822)(0.80)(10^{(\text{pK}_a - \text{pH})} + 1)}{(\text{FT})(\text{FPH})(\text{RATIO})}$$

Where:

$$\text{FT} = 10^{0.03(20-T)}$$

$$\text{FPH} = 1; \text{ when: } 8 \leq \text{pH} \leq 9; \text{ or } \frac{1 + 10^{(7.4 - \text{pH})}}{1.25}; \text{ when: } 6.5 \leq \text{pH} \leq 8$$

$$\text{RATIO} = 13.5; \text{ when: } 7.7 \leq \text{pH} \leq 9; \text{ or } \frac{(20)(10^{(7.7 - \text{pH})})}{1 + 10^{(7.4 - \text{pH})}}; \text{ when: } 6.5 \leq \text{pH} \leq 7.7$$

$$\text{pK}_a = 0.09018 + \frac{2729}{T + 273.2}$$

$$T = \text{Temperature in } ^\circ\text{C}$$

$$30\text{-day early life stage CCC} = (0.0577 / (1 + 10^{7.688 - \text{pH}})) + (2.487 / (1 + 10^{\text{pH} - 7.688}))$$

4-day average (CCC) within the 30-day period = 2.5 times the CCC value

(C) The use of the equations in clause (A) results in the following CMCs for total ammonia (as N) at different pHs:

Table 8-7
Criterion Maximum Concentrations for
Total Ammonia (as N)
Temperature (°C)

pH	0	5	10	15	20	25	30
6.5	28.48	26.61	25.23	24.26	23.64	23.32	23.29
6.6	27.68	25.87	24.53	23.59	22.98	22.68	22.65
6.7	26.74	24.99	23.69	22.78	22.20	21.92	21.90
6.8	25.64	23.96	22.72	21.85	21.30	21.03	21.01
6.9	24.37	22.78	21.60	20.78	20.26	20.01	20.00
7.0	22.95	21.45	20.35	19.58	19.09	18.86	18.86
7.1	21.38	19.98	18.96	18.24	17.80	17.59	17.60
7.2	19.68	18.40	17.46	16.81	16.40	16.22	16.24
7.3	17.90	16.73	15.88	15.29	14.93	14.78	14.81
7.4	16.06	15.02	14.26	13.74	13.42	13.30	13.35
7.5	14.23	13.31	12.64	12.19	11.92	11.81	11.88
7.6	12.44	11.65	11.07	10.67	10.45	10.37	10.45
7.7	10.75	10.06	9.569	9.238	9.052	9.003	9.088
7.8	9.177	8.597	8.181	7.907	7.760	7.734	7.830
7.9	7.753	7.268	6.924	6.701	6.589	6.584	6.689
8.0	6.496	6.095	5.813	5.636	5.555	5.569	5.683
8.1	5.171	4.857	4.639	4.508	4.457	4.486	4.602
8.2	4.119	3.873	3.707	3.612	3.584	3.625	3.743
8.3	3.283	3.092	2.967	2.900	2.891	2.942	3.061
8.4	2.618	2.472	2.379	2.335	2.340	2.399	2.519
8.5	2.091	1.979	1.911	1.886	1.903	1.968	2.089
8.6	1.672	1.588	1.540	1.529	1.555	1.625	1.747
8.7	1.339	1.277	1.246	1.246	1.279	1.353	1.475
8.8	1.075	1.030	1.011	1.021	1.060	1.137	1.260
8.9	0.8647	0.8336	0.8254	0.8418	0.8862	0.9650	1.088
9.0	0.6979	0.6777	0.6777	0.6998	0.7479	0.8286	0.9521

CMC (mg/L as N)

pH	Cold Water Fishery Present	Cold Water Species Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2

7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

(D) The use of the equations in clause (B) results in the following CCCs for total ammonia (as N) at different temperatures and pHs:

Table 8-8
Criterion Continuous Concentrations for
Total Ammonia (as N)
Temperature (°C)

pH	0	5	10	15	20	25	30
6.5	2.473	2.310	2.191	2.106	2.052	2.025	2.022
6.6	2.473	2.311	2.191	2.107	2.053	2.026	2.023
6.7	2.473	2.311	2.191	2.107	2.054	2.027	2.025
6.8	2.473	2.311	2.192	2.108	2.055	2.028	2.027
6.9	2.474	2.312	2.193	2.109	2.056	2.030	2.030
7.0	2.474	2.312	2.193	2.110	2.058	2.033	2.033
7.1	2.475	2.313	2.195	2.112	2.060	2.036	2.037
7.2	2.475	2.314	2.196	2.114	2.063	2.040	2.043
7.3	2.476	2.315	2.198	2.116	2.066	2.044	2.050
7.4	2.477	2.317	2.200	2.119	2.070	2.050	2.058
7.5	2.478	2.319	2.202	2.123	2.075	2.058	2.069
7.6	2.480	2.321	2.206	2.128	2.082	2.067	2.082
7.7	2.450	2.294	2.181	2.106	2.063	2.052	2.071
7.8	2.092	1.959	1.865	1.802	1.769	1.763	1.785
7.9	1.767	1.657	1.578	1.527	1.502	1.501	1.525
8.0	1.481	1.389	1.325	1.285	1.266	1.269	1.295
8.1	1.179	1.107	1.057	1.027	1.016	1.022	1.049
8.2	0.9387	0.8828	0.8450	0.8232	0.8169	0.8263	0.8531
8.3	0.7481	0.7048	0.6762	0.6610	0.6589	0.6705	0.6976
8.4	0.5968	0.5634	0.5421	0.5321	0.5334	0.5468	0.5741
8.5	0.4766	0.4511	0.4357	0.4298	0.4337	0.4485	0.4760
8.6	0.3811	0.3619	0.3511	0.3485	0.3545	0.3704	0.3981
8.7	0.3052	0.2910	0.2839	0.2839	0.2916	0.3083	0.3362
8.8	0.2450	0.2347	0.2305	0.2326	0.2417	0.2591	0.2871
8.9	0.1971	0.1900	0.1881	0.1919	0.2020	0.2199	0.2480
9.0	0.1591	0.1545	0.1545	0.1595	0.1705	0.1889	0.2170

CCC (30-day average) for Fish Early Life Stages Present (mg/l as N)

pH	Temperature (°C)									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

CCC (30-day average) for Fish Early Life Stages Absent, mg N/L

pH	Temperature (°C)									
	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63

8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15 C and above, the criterion for fish ELS absent is the same as the criterion for fish ELS present.

In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the CCC.

G. Revision of Method 4 Application Factor for Determination of Non-Great Lakes System Chronic Aquatic Life Criteria, 327 IAC 2-1-8.3(4)

The Method 4 application factor is 45. This factor should be revised to 18, to be consistent with the Great Lakes system factor at 327 IAC 2-1.5-12(b).

H. Deletion of Bioaccumulative Chemical of Concern Notation for Certain Substances, 327 IAC 2-1-6(a)(3), Table 1

Several of the substances in Table 1 of the non-Great Lakes system water quality criteria contain a notation of “\$,” which means the substance is considered to be a bioaccumulative chemical of concern (“BCC”). The subsequently enacted Great Lakes system rules contain a different list of BCCs in 327 IAC 2-1.5-6. The non-Great Lakes system BCCs should be consistent with the list of Great Lakes system BCCs. The “\$” notation should be removed from the following substances: hexachloroethane, chlorpyrifos, fluoranthene, phenol, di-2-ethylhexyl phthalate and hydrocarbons (PAHs).

I. Addition of Provision in non-Great Lakes System Rules Concerning Where the Temperature Criteria Shall Be Applied, 327 IAC 2-1-6(b)(4)

The non-Great Lakes temperature criteria do not contain a provision concerning where to measure for compliance with the criteria. The following provision should be added to 327 IAC 2-1-6(b)(4):

(E) The values in subdivision (D) shall normally be applied in the first meter below the water surface, but where waters are less than two (2) meters deep, the values shall normally be applied at one-half (1/2) the depth of the surface water.

3. Incorporate List of Approved Site Specific Criteria Modifications, 327 IAC 2-1 and 327 IAC 2-1.5-16.

All approved site specific criteria modifications should be incorporated in the rules. These include:

Non-Great Lakes:

Water Body	Starting Location	Ending Location	Parameter	CMC (ug/l)	CCC (ug/l)
Richland Creek	The discharge of the Princeton POTW	The confluence of Richland Creek with McCarty Ditch	Cyanide ¹ Copper Lead	45.4 $e^{(0.9422[\ln(\text{hardness})]-1.3984)}$ $e^{(1.273[\ln(\text{hardness})]-1.6983)}$	10.6 $e^{(0.8549[\ln(\text{hardness})]-1.40)}$ $e^{(1.273[\ln(\text{hardness})]-4.1915)}$
Wabash River	The outfall of the Smurfit Stone Corporation	A point 2 miles downstream	Cyanide ¹	45.6	10.6
Wabash River	Outfall of Eli Lilly and Company (river mile 230)	A point 2 miles downstream (river mile 228)	Lead	$e^{(1.273[\ln(\text{hardness})]-1.6983)}$	$e^{(1.273[\ln(\text{hardness})]-4.1915)}$
West Fork White River	The outfall of the Belmont POTW (river mile 230)	The Marion-Johnson County line (river mile 220)	Ammonia ² Copper Cyanide ¹ Lead	0.83/FT/FPH/2 $e^{(0.9422[\ln(\text{hardness})]-1.4706)}$ 45.78 $e^{(1.273[\ln(\text{hardness})]-1.1856)}$	0.83/FT/FPH/13.5 $e^{(0.8545[\ln(\text{hardness})]-1.4097)}$ 10.68 $e^{(1.273[\ln(\text{hardness})]-3.6853)}$

¹ Cyanide criteria expressed as total cyanide.

² Where: $FT = 10^{0.03(20-\text{Temperature})}$
 $FPH = 1$ (for pH 8-9)
 $FPH = (1+10^{7.4-\text{pH}})/1.25$ (for pH 6.5 –8.0)

Great Lakes:

Water Body	Starting Location	Ending Location	Parameter	CMC (ug/l)	CCC (ug/l)
Grand Calumet River	US Steel outfall 005 (river mile 0.5)	A point one (1) mile downstream (river mile 1.5)	Cyanide ¹	45.6	10.6

¹ Cyanide criteria expressed as free cyanide.

4. Addition of New Provision to Great Lakes Rules Concerning Reasonable Potential Analysis for Metals with Dissolved Criteria, 327 IAC 5-2-11.5(b)(1)(A)

Although the Great Lakes system metals criteria are expressed in dissolved form, a WQBEL for a metal must be expressed in the total form. Recently, IDEM has raised concerns about its ability to conduct a reasonable potential analysis using dissolved metal data. The following provision should be added to 327 IAC 5-2-11.5(b)(1)(A) to clarify that IDEM must use dissolved metals data when available.

- (v) If dissolved metals effluent data are available, the commissioner shall develop a dissolved metals PEL

consistent with WLAs developed under items (i) through (iii). If this process determines that a substance is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion of the applicable criteria, the preliminary dissolved metal WLA will be converted into a total metal WQBEL using the statistical procedures in section 11.6 of this rule.

When the non-Great Lakes system metals criteria are revised to the dissolved form, this reasonable potential provision should be applied when IDEM issues permits for non-Great Lakes system dischargers.

5. Incorporation by Reference Updates, 327 IAC 1, 2 and 5

All incorporations by reference in 327 IAC 1, 2 and 5 should be updated to the most current version or edition. These references include:

327 IAC 1-1-1 References to Federal Act: Unless otherwise indicated, references in ~~these rules~~ **this title** (327 IAC) to the Federal Water Pollution Control Act or to the Clean Water Act (CWA) shall mean the Federal Water Pollution Control Act ~~as defined in IC 13-7-1-10 in effect on July 1, 2002.~~

327 IAC 1-1-2 References to the Code of Federal Regulations: Unless otherwise indicated, any reference to a provision of the Code of Federal Regulations (CRF) shall mean the July 1, ~~1986~~ **2002** revision.

327 IAC 2-1-12 Incorporation by reference: The following materials have been incorporated by reference into this rule. Each of the following items, in addition to its title, will list of the name and address of where it may be located for inspection and copying:

(1) Clean Water Act (CWA) 33 U.S.C. 1251 et. seq. in effect ~~December 16, 1996~~ **on July 1, 2002**, available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or from the Indiana Department of Environmental Management, Office of Water ~~Management~~ **Quality**, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(2) Code of Federal Regulations (40 CFR 136) in effect ~~December 16, 1996~~ **July 1, 2002**, available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or from the Indiana Department

of Environmental ~~Management~~ **Quality**, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

327 IAC 2-1.5-20 Incorporation by Reference: The following materials have been incorporated by reference into this rule. Each of the following items, in addition to its title, will list the name and address of where it may be located for inspection and copying:

(1) Clean Water Act (CWA), 33 U.S.C. 1251 et seq., in effect ~~December 16, 1996~~ **July 1, 2002**, is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(2) The map identifying 1995 United States Coast Guard Light List No. 19675 is available from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(3) Code of Federal Regulations (40 CFR 136) in effect ~~December 16, 1996~~ **July 1, 2002**, are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(4) ASTM, 1990, Standard Practice for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs, Standard E 1022, available from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(5) 1986 U.S. EPA Guidelines for Carcinogenic Risk Assessment (U.S. EPA, 1986), available from the U.S. Environmental Protection Agency, Office of Water Resource Center (WH-550A), 401 M Street, S.W., Washington, D.C. 20460, and the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(6) U.S. EPA. 1993, Chapter 4, Wildlife Exposure Factors Handbook, Volumes I and II, available from U.S. Environmental Protection Agency, Office of Water Resource Center, 401 M Street, S.W., Washington, D.C. 20460 [EPA/600/R-93/187a and b], and the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

~~(7) “Standard Methods for the Examination of Water and Wastewater”, Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Environment Federation, 18th Edition, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005, and the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 Senate Avenue, Indianapolis, Indiana 46206.~~

~~(8)~~ (7) 1980 National Guidelines, 45 FR 79352 and 45 FR 79354.

327 IAC 5-2-1.5 Incorporation by Reference: The following materials have been incorporated by reference into this article. Each of the following items, in addition to its title, will list the name and address of where it may be located for inspection and copying:

(1) Clean Water Act (CWA), 33 U.S.C. 1251 et seq., in effect on ~~December 16, 1996~~ **July 1, 2002**, is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(2) All Federal Registers listed in this rule are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(3) **All** Code of Federal Regulations ~~(40 CFR 100–149, 40 CFR 400–424, and 40 CFR 425–699)~~, in effect on ~~December 16, 1996~~ **July 1, 2002**, are available from the Superintendent of Documents, Government Printing Office,

Washington, D.C. 20402, or the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(4) Standard Form A Municipal (EPA Form 7550-22), available from the U.S. Environmental Protection Agency, Office of Water Resource Center, 401 M Street, S.W., Washington, D.C. 20402, or the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

(5) Pollution Prevention Act of 1990 (42 ~~USCA~~ **U.S.C.** 13101 ~~to 42 USCA 13109 et seq.~~), available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.

~~(6) "Standard Methods for the Examination of Water and Wastewater", Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Environment Federation, 18th Edition, 1992. Available from American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C., 20005, and the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46206.~~

6. Revisions to Approved Analytical Procedures and Test Methods, 327 IAC 2 and 5

All provisions concerning approved analytical procedures and test methods should be consistent. The following revisions should be made:

327 IAC 2-1-8 Methods of analysis: The analytical procedures used as methods of analysis to determine the chemical, bacteriological, biological, and radiological quality of waters sampled shall be in accordance with 40 C.F.R. 136, ~~the sixteenth edition of Standard Methods for the Examination of Water and Wastewater~~, or methods approved by the commissioner and the Environmental Protection Agency.

327 IAC 2-1.5-10 Methods of analysis: The analytical procedures used as methods of analysis to determine the

chemical, bacteriological, biological, and radiological quality of waters sampled shall be in accordance with 40 CFR 136, ~~Standard Methods for the Examination of Water and Wastewater~~, or methods approved by the commissioner and the Environmental Protection Agency.

327 IAC 2-4-3 Sampling frequency; methods of analysis: Sampling, measurements of flow and characteristics of the effluent shall be performed at a frequency prescribed by the commissioner. ~~All analytical work shall be in accordance with the 16th edition of "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association (APHA) or other methods approved by the commissioner.~~ **The analytical procedures used as methods of analysis to determine the chemical, bacteriological, biological, and radiological quality of waters sampled shall be in accordance with 40 CFR 136 or methods approved by the commissioner and the Environmental Protection Agency.**

327 IAC 5-2-13 Monitoring: ... (d) Requirements for test procedures shall be as follows:

(1) Test procedures identified in 40 CFR 136 shall be utilized for pollutants or parameters listed in that part, unless an alternative test procedure has been approved under 40 CFR 136.5.

(2) Where no test procedure under 40 CFR 136 has been approved, analytical work shall be conducted in accordance with ~~the most recent edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association (APHA) or as otherwise specified by~~ **methods approved by the commissioner in the permit and the Environmental Protection Agency.**

~~(3) Notwithstanding subdivision (1), the commissioner may specify in a permit the test procedure used in developing the data on which an effluent limitations guideline was based, or specified by the standards and guidelines.~~

327 IAC 5-2-15 Reporting requirements: ... (d) As used in this section, "approved analytical methods" means those test procedures for the analysis of pollutants ~~which conform to 40 CFR 136 or are specified in the permit~~ **pursuant to**

section 13(d) of this rule.

II. Rulemaking Timeframe for the “No Brainers”

In order to accomplish these “no brainer” revisions on an expeditious timeframe, we propose the following schedule for rulemaking:

- Request complete list of “no brainer” issues from triennial review work group within 30 days.
- Assign small tech team to consider changes within 90 days.
- Publish detailed first notice within 150 days.
- Publish second notice within 210 days.
- Preliminary adoption within 270 days.
- Final adoption within 330 days.

III. Recommendations on Revisions That Will Require Work Group Consideration

The following issues should be studied by focused work groups pursuant to Section IV of these comments.

1. Antidegradation and Special Designations, 327 IAC 2-1; 327 IAC 2-1.5

The final report of the Water Quality Advisory Group should be issued as soon as possible. An Antidegradation and Special Designations Work Group should be formed to consider revisions to comply with the provisions of Senate Enrolled Act 431 (2000) and to consider the recommendations of the Water Quality Advisory Group.

2. Narrative Biological Criteria

A draft of the final report of the Water Quality Advisory Group makes the following recommendation concerning narrative biological criteria:

The WQAG found from experts in the field that the tool is excellent and appropriate as a research tool to evaluate Indiana waters but is yet far from adequate to serve as an enforceable standard. The WQAG found that its use should be increased in the state to inform Indiana water policy priorities but that it **not be promulgated as a standard**.
[Emphasis added.]

IDEM should not propose adoption of narrative biological criteria at this time.

3. Narrative Sediment Criteria

A draft of the final report of the Water Quality Advisory Group makes the following recommendation concerning narrative sediment criteria:

The WQAG found from experts in the field that the tool is excellent and appropriate as a research tool to evaluate Indiana waters but is yet far from adequate to serve as an enforceable standard. The WQAG found that its use should be increased in the state to inform Indiana water policy priorities but that it **not be promulgated as a standard**. [Emphasis added.]

IDEM should not propose adoption of narrative sediment criteria at this time.

4. Site Specific Criteria Modifications, 327 IAC 2-1.5-16; 327 IAC 2-1

Recently, IDEM has indicated that U.S EPA Region 5 believes that site specific criteria modifications made pursuant to the Great Lakes system rule 327 IAC 2-1.5-16 require U.S. EPA approval prior to use to derive WQBELs in permits. This determination is based on the “Alaska Rule.” In 2000, EPA amended 40 CFR § 131.21 concerning its review and approval of State water quality standards.⁶ The amendments were made based on the ruling in *Alaska Clean Water Act Alliance v. Clark*, No. C96-1762R (W.D. Wash., July 8, 1997), which provided that EPA must review and approve State water quality standards before States may use the standards to implement provisions of the Clean Water Act. The Alaska Rule applies to standards adopted after May 30, 2000. EPA has 60 days to approve standards, and if it decides to disapprove a standard, it must notify the State within 90 days.⁷

Certain provisions in the preamble to the final Alaska Rule⁸ indicate that site-specific modifications adopted pursuant to State procedures that have been approved by EPA are not themselves subject to the Alaska Rule. EPA calls State-adopted procedures such as those used to develop site-specific criteria a “performance-based” approach to adopting criteria.

A performance-based approach relies on adoption of a process (*i.e.*, a criterion derivation methodology) rather than a specific outcome (*i.e.*, concentration limit for a pollutant) consistent with 40 CFR 131.11 & 131.13. When such a “performance-based” approach is sufficiently detailed and has suitable safeguards to ensure predictable, repeatable outcomes, EPA approval of such an approach can also serve as approval of the outcomes as well. The “performance-based” approach is particularly well

⁶ 65 Fed. Reg. 24641.

⁷ 33 U.S.C. § 1313(c)(3).

⁸ 65 Fed. Reg. 24641.

suiting to the derivation of site-specific numeric criteria....⁹

The Great Lakes system site specific criteria modification provision, 327 IAC 2-1.5-16, should be revised to be a performance-based approach, so that modifications do not need to be approved by U.S. EPA prior to use to derive WQBELs in permits.

The non-Great Lakes system rules should contain provisions similar to the Great Lakes system site specific criteria modification rules (revised as explained above).

Making these revisions should be a high priority. A focused work group should consider this issue as soon as possible, and rulemaking should be pursued on an aggressive schedule.

5. Statewide Mercury Variance

IDEM already has initiated a rulemaking to adopt a statewide mercury variance.¹⁰ In the Summary of Key Issues, IDEM states that it expects to complete “the rulemaking by the end of 2004 (it is a top priority of OWQ to achieve this goal).” As a “top priority,” adoption of a statewide mercury variance should not take this long. It is almost two and a half years until the end of 2004. This timeline is not quick enough. Dischargers are currently being issued permits with mercury limits, and the compliance schedules in these permits only last three or five years. If the rulemaking is not completed until the end of 2004, it will not provide enough time for dischargers in this situation to request permit modifications to obtain the benefit of the mercury variance. A focused work group should consider this issue as soon as possible, and IDEM should make every attempt to complete this rulemaking within a year. Please refer to the “no brainer” rulemaking schedule for specifics about what milestones should be reached to meet this goal.

The mercury variance section of IDEM’s Summary of Key Issues contains an inaccuracy. It states that “[a]ll of Indiana’s surface waters are under fish consumption advisories because the level of mercury in fish tissue exceeds the FDA’s Action Level of 1 mg/kg.” This statement implies that fish in all of Indiana’s water bodies have been tested for mercury, which is not the case. The “Action Level” adopted by the U.S. Food and Drug Administration (“FDA”) is a generic fish consumption advisory for the entire country. One milligram of mercury per kilogram of fish is considered the maximum amount of mercury in fish tissue that sensitive persons (particularly children and women who are or may become pregnant or are nursing) can safely consume. The FDA generic fish consumption advisory cannot be specifically applied to all water bodies in Indiana.

6. Statewide Total Dissolved Solids Variance

In the Summary of Key Issues, IDEM proposes to adopt a statewide variance for total dissolved solids and its components, including chlorides, sulfates and fluoride. As discussed earlier in these comments, the non-Great Lakes system criteria for total

⁹ *Id.* at 24648.

¹⁰ Indiana Register citation.

dissolved solids, sulfates and fluoride should be revised so they only apply as appropriate to public water or industrial water supplies. Thus, a statewide variance for these criteria should not be necessary.

7. Intake Pollutants/Noncontact Cooling Water, 327 IAC 5-2-11.5

The intake pollutant section of the Summary of Key Issues contains an inaccuracy. It states that the Addendum to the National Pollutant Discharge Elimination System Memorandum of Agreement Between the State of Indiana and the United States Environmental Protection Agency Region 5 Concerning Indiana's Great Lakes Water Quality Standards and Implementation Procedures Rulemaking ("Addendum") requires IDEM to not issue any permits allowing intake credits where the once-through noncontact cooling water intake and outfall points are located on different bodies of water. It is true that the Addendum limited Indiana's noncontact cooling water rules to situations in which the intake and outfall points are determined to be the "same body of water," as defined in 327 IAC 5-2-11.5(b)(4)(B). However, the definition of "same body of water" can apply under certain limited circumstances in which the intake point is Lake Michigan and the outfall point is a tributary to Lake Michigan.¹¹ Furthermore, the noncontact cooling water provision in 327 IAC 5-2-11.5(g) is not an intake credit provision, but rather a special provision that allows IDEM to exercise best professional judgment to not undergo the reasonable potential to exceed procedures to determine that noncontact cooling water is substantially the same as when it was withdrawn from a water body that is considered to be the same body of water.

8. Water Treatment Additives

IDEM should continue to allow substitutions of water treatment additives to occur without requiring permit modification.

9. Great Lakes System Whole Effluent Toxicity Reasonable Potential to Exceed Procedures, 327 IAC 5-2-11.5(c)

IDEM should not propose to revise the Great Lakes system whole effluent toxicity reasonable potential to exceed procedures until the legal challenge to EPA's overpromulgation of Indiana's rules is resolved.¹²

10. Adoption of Great Lakes System Procedures for Non-Great Lakes System

In the Summary of Key Issues, IDEM has raised the issue of whether several of the implementation procedures in the Great Lakes system rules should be applied to the non-Great Lakes system. These issues include:

¹¹ See 327 IAC 5-2-11.5(b)(4)(B)(iv).

¹² *Indiana Water Quality Coalition v. U.S. EPA*, which has been consolidated with *Northeast Ohio Regional Sewer District et al. v. U.S. EPA*, Case Nos. 00-4502 and 01-3379, U.S. Court of Appeals for the Sixth Circuit.

- Methodologies for Deriving Tier 1 Criteria and Tier 2 Values
- Intake Pollutants
- Averaging of Level of Quantification Values
- Mass and Concentration Limits
- Mixing Zones
- Pollutant Minimization Programs
- Reasonable Potential to Exceed Procedures
- Additivity
- Whole Effluent Toxicity

A work group should carefully consider the necessity and impact of adopting any Great Lakes system implementation procedures for non-Great Lakes system water bodies.

11. Other Issues That Should Be Considered During the Work Group and Rulemaking Process

A. Variance Procedures

The variance rules should allow dischargers to obtain variances from whole effluent toxicity and the narrative water quality criteria.

B. Statewide Variance for PCBs, Other Substances

Statewide variances similar to the one proposed for mercury should be considered for PCBs and other similar substances.

C. Tiered Mass Limits Based on Seasonal Variations, Production Fluctuations

The allowance for tiered mass limits should be extended to situations beyond wet weather events, such as seasonal variations and production fluctuations.

Making these revisions should be a high priority. A focused work group should consider this issue as soon as possible, and rulemaking should be pursued on an aggressive schedule.

D. 327 IAC 5-10-3 Controlled Discharges: Make Applicable to Industrial Discharges

This section currently only applies to municipal wastewater treatment facilities. It should be extended to all wastewater treatment facilities with controlled discharges.

Making these revisions should be a high priority. A focused work group should consider this issue as soon as possible, and rulemaking should be pursued on an aggressive schedule.

IV. Process for Revisions That Will Require Work Group Consideration

We recommend that IDEM form the following work groups, made up of a focused cross-section of stakeholders, to review the issues in Section III of these comments.

- Antidegradation and Special Designations Work Group
- Criteria and Standards Work Group
- E. coli Criteria and Implementation Work Group
- Implementation (Including Mixing Zones) Work Group
- Variances (Including Statewide) Work Group

These group groups correspond to IDEM's staff assignments for the water quality standards and implementation procedures rulemakings.

Conclusion

We appreciate your consideration of these comments, and look forward to working with the IDEM, other stakeholders and the Water Pollution Control Board on appropriate revisions to Indiana's water quality standards and implementation procedures rules. If you have questions, please give me a call.

Sincerely,

Kari Evans

cc: Triennial Review stakeholders